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Relation of Negative Affectivity to Self-Reports of Job Stressors and Psychological Outcomes

Irvin Sam Schonfeld
City College of the City University of New York and Columbia University

A total of 250 new women teachers participated in a longitudinal study of the influence of negative affectivity (NA) on the relation of self-report work-environment measures to psychological outcomes. Three "neutrally worded" work-environment measures were specially constructed to minimize confounding with NA. The work-environment measures were moderately related to *postemployment* depressive symptoms, job satisfaction, and, among Whites but not among a principally Black and Hispanic subsample, motivation. Correlation and regression coefficients were largely unchanged when the *preemployment* psychophysiologic symptoms scale and the Center for Epidemiologic Studies–Depression Scale (L. S. Radloff, 1977), factors that tap NA, were controlled. Findings suggest NA does not overly distort the relation of some self-report work-environment measures to depressive symptoms, satisfaction, and motivation.

Considerable research evidence indicates that negative affectivity (NA), or neuroticism, represents a mood dispositional trait that has long-term stability and gives rise to dysphoric emotions and poor self-concept (Costa, McCrae, & Zonderman, 1987; McCrae & Costa, 1994; Schroeder & Costa, 1984; Watson & Clark, 1984, 1992; Watson & Pennebaker, 1989). Watson, Pennebaker, and Folger (1987) argued that NA, because it negatively colors individuals' perceptions and appraisals and engenders dysphoric mood, is likely to underlie the relation between self-report measures of job stress and psychological distress outcomes.

The research literature is divided (e.g., Brief, Burke, George, Robinson, & Webster, 1988, and Chen & Spector, 1991) on the extent to which NA distorts the relation between measures of self-reported job stress and psychological distress. In a study of professional and managerial personnel, Brief et al. (1988) found that NA explained much of the relation of self-reported job and personal stress to job satisfaction, somatic complaints at work, negative affect at work, life satisfaction, and depressive symptoms. The Pearson correlations between the stress and outcome measures were all significantly greater than zero; when NA was partialled, however, the coefficients were generally reduced, although most remained significant. The results are compatible with the view that NA contaminates self-report measures of stress and distress and accounts for much of the zero-order relation.

The stress measures used by Brief et al. (1988), however, were excessively contaminated with NA. Brief et al. measured occupational and nonoccupational stress with a summated scale (Bhagat, McQuaid, Lindholm, & Segovis, 1985) that relied on the participants' ratings, positive or negative, of the impact of different events. Scales that have respondents identify stressful events by their impact are open to confounding with preexisting distress and are subject to attribution errors (Dohrenwend & Shrout, 1985; Schonfeld, Rhee, & Xia, 1995).

In a study of mostly professional and white-collar workers, Chen and Spector (1991) examined the relation of a variety of work-related stressors (e.g., role ambiguity, role conflict, interpersonal conflict with other workers) to job strains (e.g., job satisfaction, state anger, health symptoms). The zero-order correlations changed relatively little when NA was controlled. One difference between this study and the study by Brief et al. (1988) is the latter's focus on

Irvin Sam Schonfeld, School of Education, City College of the City University of New York, and Department of Psychiatry, Columbia University.

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Correspondence concerning this article should be addressed to Irvin Sam Schonfeld, School of Education, EDFN, City College of the City University of New York, New York, New York 10031. Electronic mail may be sent via Internet to schcc@cunyum.cuny.edu.

acute stressors and the former's focus on chronic stressors. Another difference between the two studies is the potential for greater confounding with NA in the summated measures of stress used by Brief et al.

Burke, Brief, and George (1993) reanalyzed Chen and Spector's (1991) data. Burke et al., in a comparison between Pearson and partial correlation coefficients, examined the percentage of explained variance that was reduced when (a) NA was controlled, (b) the coefficients were disattenuated for measurement error, and (c) item redundancy was controlled. Burke et al. found the percentages of explained strain variance were reduced when NA was partialled; however, because Chen and Spector's study was cross-sectional, the most certain conclusion is that stressors, strains, and NA are mutually correlated; it is equally possible that stressors influenced the relation of NA to strains (Zapf, Spector, Chen, & Frese, 1994). Chen and his colleagues (Chen, O'Connell, & Spector, 1993; Chen & Spector, 1991; Zapf et al., 1994) found that controlling for NA tended to reduce the relation of stressors to somatic complaints but not to other kinds of distress (e.g., depressive symptoms).

A difficulty common to both the studies by Chen and Spector (1991) and Brief et al. (1988), as well as to other related studies (e.g., Brett, Brief, Burke, George, & Webster, 1990; Jex & Spector, 1996; Schaubroeck, Ganster, & Fox, 1992), is their cross-sectional design. Although Brett et al. used an innovative procedure to identify a relation between NA and both work and nonwork life event items, their cross-sectional design could not establish whether NA affects the reporting of life events or the life events engender distress. A longitudinal design with NA measured before the occurrence of life events provides a better means for identifying confounding with NA. Because NA is a personality trait, it has a temporal dimension the impact of which may be better assessed with longitudinal data.

The Current Study

The purpose of the present study was to clarify, using longitudinal data, the problem of NA influencing the relation between self-report measures of job conditions and psychological outcomes in a sample of new teachers. With few exceptions (e.g., Chen et al., 1993), most research on NA affecting the relation of self-reported job stressors to psychological distress has been cross-sectional. Teaching is an especially apt context in which to examine this relation because there is considerable within-occupation variability in working conditions.

Measuring Working Conditions

In contrast to the summated rating scales described earlier, the teacher measures, which cover a spectrum of episodic and ongoing stressors, were specially constructed to minimize reference to the distress with which they may be associated (Schonfeld, 1990). In a discussion of the widespread problem of circularity in measures of occupational stress and psychological distress, Kasl (1987) advanced the view that self-report work-environment measures should be designed with minimal reference to the psychological distress with which the work environments are thought to be linked. The occupational stress literature relies heavily on appraised and relational definitions of occupational stress (cf. Edwards, 1992). Dohrenwend and Shrout (1985) argued that it is important for stress researchers to assess environmental events minimally contaminated by perceptions and appraisals. Such assessments allow investigators to examine the events in the context of social and personal resources and vulnerabilities that not only influence the events' appraisal but affect the impact of the events on psychopathology. Dohrenwend and his colleagues (Dohrenwend, Link, Kern, Shrout, & Markowitz, 1987) did not argue that subjective appraisals have no value to stress research. Appraisals can provide clues to vulnerability to stress when researchers compare individuals who appraise objectively measured events differently. Kasl (1987) underlined the importance for public-health oriented prevention efforts of objectively identifying working conditions that adversely affect workers' physical and mental health. Without unambiguous knowledge of the conditions to which workers are exposed (e.g., fights break out every day in teachers' classes), efforts to improve job conditions will founder.

Controlling for NA

In the present study, the influence of NA was assessed indirectly capitalizing on the study's longitudinal design. The Center for Epidemiologic Studies–Depression Scale (CES-D; Radloff, 1977) and a psychophysiologic (PP) symptoms scale, both state measures with time frames of 1 week, were administered to a sample of women in the summer just after they completed college but before they became full-time teachers. NA, by contrast, is an enduring aspect of personality. In the study I exploited the carryover of the CES-D and the PP symptoms scale across time to capture the scales' components that reflect NA. By contrast, in the context of a cross-sectional design, the scales would look very much like measures of acute distress;

indeed, without longitudinal data it would be difficult to distinguish a traitlike component.

Prior research with some of the cohorts seen in this study has indicated that the CES-D and the PP symptoms scale have traitlike components in that they show stability over time (Schonfeld, 1992). In the more fallible cross-sectional context, Brief et al. (1988) showed that the CES-D correlated .69 with NA, a value that is consistent with the correlations found among different indicators of NA (e.g., Chen & Spector's, 1991, two indicators of NA correlated .74). In another cross-sectional study, Schaubroeck et al.'s (1992) state depression measure correlated .69 with their indicator of neuroticism and .90 with their latent NA variable. These cross-sectional findings are consistent with Watson and Clark (1984) and Costa et al. (1987).

Watson and Pennebaker (1989) found that measures of self-reported health complaints such as the Somatization scale of the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenmuth, & Covi, 1974), a measure similar in content and time frame to the PP symptoms scale used in this study, "reflect a pervasive mood disposition of negative affectivity" (p. 234), although Schaubroeck et al. (1992) supplied counterevidence to suggest that somatic complaints are distinguishable from NA. The somatic complaints measure used by Schaubroeck et al., however, correlated .64 with their latent NA variable and they provided no evidence that the latent NA and somatic variables differentially predict future effects. Watson and Clark (1992) found that the relation of somatic complaints to different facets of negative mood was mediated by NA. In the current study, because the sample largely consisted of young college-educated adults, it is much more likely that the PP symptom scale tapped NA-related disturbance than chronic disease.

I hypothesized that if the relation of self-reported working conditions to depressive symptoms is the result of a common link to NA, a significant concurrent relation between depressive symptoms and job conditions would be nullified when preemployment levels of the CES-D and PP symptoms were controlled. The traitlike component of contemporary symptom scores could only be controlled by adjusting for past symptom scores given the expected temporal stability. A less extreme version of the hypothesis is that the correlation or regression coefficient would be reduced, but not to zero (Zapf et al., 1994). By including measures of pre- and postemployment symptoms, the study can also examine the relation of working conditions to temporal change in psychological distress (Schonfeld et al., 1995), something impossible to study in the context of cross-sectional research.

The relation of working conditions to job satisfaction and motivation to teach was also examined. It is believed that NA is as likely to permeate individuals' expectations and motivations concerning work as to permeate expectations about life outside of work. Before their entry into the teaching profession, the women's expected job satisfaction and motivation to teach were assessed. I hypothesized that if the relation of working conditions to job satisfaction and motivation is the result of a common link to NA, significant zero-order correlations or significant simple regression coefficients linking job-related adversity to satisfaction and motivation would be reduced when preemployment expected satisfaction and motivation are controlled in conjunction with the preemployment symptom measures.

Timing

The two measurement periods, about 4 to 5 months apart, comprise a preemployment period in the summer following June graduation ceremonies and the first fall semester on the job. The timing of the preemployment period, a period of "anticipatory socialization" into the work role, is important for obtaining newcomers' expectations about work (Nelson, 1987). The pre- to postemployment interval is optimal for linking working conditions to psychological distress (Depue & Monroe, 1986). The fall period corresponds to an important time in the stress process because it represents the period of first "encounter" with job stressors (Nelson, 1987) in the context of the teachers' first year on the job. A teacher's first year is "commonly regarded as the most difficult time in the teacher's career, and is a proving ground for many" (Schonfeld & Santiago, 1994, pp. 114–115). Similarly, Louis (1980) advanced the view that the transition from college to a first-time career-related job is potentially more stressful than changing jobs.

Race

Researchers rarely examine racial differences in the extent to which NA biases the relation of self-report work-environment measures to psychological distress. White and Nonwhite teachers may have different concerns regarding their jobs, especially considering the large ethnically and racially diverse populations attending many urban schools. One may

expect Hispanic, Black, and Asian teachers to be more committed to serving the population attending urban schools. A number of analyses examine the influence of NA on the relation of the work-environment measures to postemployment outcomes separately in White and Nonwhite subgroups.

Method

Sample

As part of a longitudinal study, participants were recruited during spring semesters in 1987, 1988, 1989, and 1990 while they were completing their final courses at leading undergraduate teacher-training institutions in New York City. The institutions were selected because they had a record of staffing local school districts. Participants were principally recruited on the basis of their attendance in senior-year education classes. Another group of participants was recruited from final-year psychology courses (where students were highly likely to find work outside of teaching). More than 90% of the eligible individuals signed letters of informed consent, and 86% of the individuals who signed such letters participated in the summer preemployment round of data collection. The participants were contacted in the summer before they entered the work force and in the fall after they became teachers.

The final sample consisted of 250 women who taught full time in the fall following graduation and who participated in the preemployment round of data collection. One full-time teacher who participated in both the summer and the fall was excluded because she had taught for only 1 week by the time the fall data were collected, having obtained her job late in the term. Three women who taught full time in the fall but were unavailable for the preemployment period of data collection were excluded. Women who taught part time ($n = 61$) were not included because their exposures to the various working conditions were not equivalent to the exposures of the full timers. The women who went on to become part-time teachers, moreover, differed from the women who went on to become full-time teachers on three preemployment measures (to be described later) suggesting selection into future work roles. The future part timers had more depressive ($M_{ft} = 11.5$, $M_{pt} = 14.2$), $t(308) = 1.94$, $p \approx .05$, and psychophysiological symptoms ($M_{ft} = 9.1$, $M_{pt} = 11.6$), $t(309) = 2.63$, $p < .01$, and lower expected satisfaction ($M_{ft} = 4.1$, $M_{pt} = 3.8$), $t(309) = 2.20$, $p < .05$.

Women ($n = 11$) whose fall teaching jobs reflected continuity with past employment were also excluded (e.g., a woman who taught in a local Catholic school before obtaining her baccalaureate continued to teach there after obtaining the degree—unlike local public schools, many local Catholic schools hire teachers without baccalaureate degrees). Ten women who had prior teaching jobs that were judged to be discontinuous with the jobs they were to obtain in the fall were counted as new teachers for the purpose of this study (e.g., a woman who taught without a baccalaureate degree in her third-world country of origin but, after college, obtained a job in a New York City public school). Two women who had a sufficient number of college credits and expected to graduate but, owing to technicalities, did not graduate were included in the sample because in the fall they obtained jobs in schools that did not require them to have baccalaureate degrees immediately on appointment. The sample for a preliminary research report (Schonfeld, 1992) differed from the current sample in three ways: The prior report did not (a) include women from all four entering-teacher cohorts, (b) exclude part-time teachers, and (c) exclude women having prior experience that was continuous with their fall-term experience. A total of 171 teachers in this study was used in the preliminary study that followed the teachers further through their early careers.

Men (because those recruited rarely became full-time teachers), and women who entered other occupations, became unemployed, or attended graduate school full time were not considered in this article.

The teachers' average age was 27 years; 22% were Nonwhite (28 Black, 23 Hispanic, and 4 Asian). The sample came from principally middle-class homes (average social class of origin as measured on Hollingshead's [1974], five-point scale was 2.7); 33% were married by the time they obtained jobs. Twenty-one percent of the sample taught kindergarten or prekindergarten, 58% in elementary school, 11% in junior high schools, 9% in high schools, and 1 woman taught mentally retarded young adults. Seventy-one percent of the sample taught in public schools; 12% in Catholic schools, 3% in Jewish schools, and 15% in a variety of other schools including nondenominational private schools and preschools.

Procedure

The participants completed surveys in the summer before obtaining their teaching jobs and in the fall, about 4 to 5 months later, after they became full-time teachers. The preemployment survey provided information on depressive and psychophysiologic symptoms, expected job satisfaction, and motivation to be a teacher in the future. The postemployment survey covered depressive and psychophysiologic symptoms, job satisfaction, and motivation. The fall postemployment survey also included three measures of the quality of the school environment: episodic stressor, ongoing stressor, and crime scales.

In prior research (Schonfeld, 1992), the ongoing stressor scale was called a *strain scale,* after the term used in the psychosocial epidemiologic literature, (e.g., Pearlin & Schooler, 1978) to reflect chronically occurring difficulties, in contrast to episodic problems. In the occupational psychology literature, *strain* represents distress resulting from adverse job conditions (e.g., Chen & Spector, 1991). In view of the discrepant meanings of the term *strain,* in the present study the term *ongoing stressor* denotes chronic difficulties.

Symptom Measures

Center for Epidemiologic Studies–Depression Scale (CES-D). The CES-D (Radloff, 1977) is a 20-item depressive symptom scale pertaining to the last week. The response alternatives for the items were *less than one day per week* (0), *1–2 days per week* (1), *3–4 days per week* (2), and 5–7 days per week (3). The scale includes four items worded in the positive direction that were reverse scored. A total CES-D score was obtained by summing the responses to the 20 items, high scores on the scale thus reflecting high symptom levels. For the pre- and postemployment periods, the coefficient alpha for the scale was .91 and .92,

respectively (the means and standard deviations for the CES-D and the psychophysiologic symptoms, job satisfaction, and motivation scales are found in Table 1).

Psychophysiologic (PP) symptoms. These were measured by 17 items that ascertain the frequency of symptoms held to be psychosomatic (cf. Cronkite & Moos, 1984) occurring in the last week. Such items include headaches, chest pains, stomachaches, back pains, and so forth. To avoid redundancy, I excluded from the scale items that might reflect depressive symptomatology (e.g., sleep problems, lack of energy). The response alternatives for the PP symptoms items were identical with that of the CES-D items. A total score was obtained by summing the items. High scores reflected high symptom levels. For pre- and postemployment periods, the coefficient alphas for the scale were .80 and .81, respectively.

Work-Related Outcomes

Expected job satisfaction. In the preemployment period, expected job satisfaction was measured by a single item based on an item used by Quinn and Staines (1979). "Overall, how satisfied do you expect to be in the job you are about to get?" *Very dissatisfied* (1) *Fairly dissatisfied* (2) *Neither satisfied nor dissatisfied* (3) *Fairly satisfied* (4) or *Very satisfied* (5). Single-item scales are subject to more unreliability than multiitem scales. Because preemployment expectations about work are potentially important for assessing the impact of the job (Louis, 1980; Nelson, 1987), some assessment of those expectations was warranted. The expected satisfaction item was the only item that could reasonably be constructed to be commensurate with any of the three job satisfaction items described next.

Job satisfaction. In the postemployment period, job satisfaction was measured by three five-alternative items adapted from Quinn and Staines (1979). The items, which have commonly been used in research on work, included

> Overall, how satisfied are you with your current job?; In general, to what extent does your current job measure up to the sort of job you wanted when you took it?; If a good friend says he or she is interested in a job like yours, and wants your opinion, what would you tell your friend?

Each scale score was computed from the woman's mean of the three items. The scale was constructed such that a high score reflected high satisfaction. The alpha coefficient for the job satisfaction scale was .79.

In addition to the three-item scale, the single item "Overall, how satisfied" was also used in some analyses because it paralleled the wording of the one-item preemployment expected satisfaction measure.

Motivation to be a teacher. Motivation to teach was measured by three Likert-type items derived from Kyriacou and Sutcliffe (1979): "How likely is it that you will be a teacher in two (five, ten) years time?" Response alternatives ranged from 1 (*very unlikely*) to 5 (*very likely*). A total score was obtained by computing the mean of the three items. The scale was thus constructed such that a high score reflected a high expectation of being a teacher in the future. For pre- and postemployment periods, the coefficient alphas for the scale were .77 and .89, respectively.

Work-Environment Measures

Each of the three work-environment measures comprised neutrally worded self-report items adapted from two sources: episodic and ongoing work-related problems identified in the teacher-stress literature and by teacher informants. In contrast to traditional stress scales that assess the intensity with which workers are disturbed by various job-related stressors, neutrally worded items aimed at

Table 1
Means and Standard Deviations of the Scales

Episodic stressor scale	Preemployment period								Postemployment period									
	CES-D		Expected job satis.		Motiv.		PP symptoms		CES-D		Job satis.		One-item job satis.		Motiv.		PP symptoms	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Low	10.5	8.6	4.2	1.0	4.6	0.7	7.6	5.6	8.1	6.5	4.0	0.7	4.0	1.1	4.4	0.9	8.3	5.7
Medium	11.1	9.7	4.1	1.1	4.5	0.8	8.2	5.7	12.4	8.5	3.7	0.8	3.6	1.1	4.2	0.9	10.2	6.4
High	12.9	10.0	4.0	1.1	4.4	0.8	11.5	7.2	18.6	12.0	3.0	1.0	3.1	1.3	3.9	1.0	13.0	7.1
df	2, 247		2, 247		2, 247		2, 247		2, 245		2, 245		2, 245		2, 245		2, 243	
F	1.43		0.79		0.88		9.68		27.06		25.03		12.20		5.31		10.89	
p	*ns*		*ns*		*ns*		.001		.001		.001		.001		.01		.001	

Note. The one-item job satisfaction (satis.) scale refers to the one item in the postemployment job satisfaction scale that corresponds in wording to the single-item preemployment expected job satisfaction scale. Post hoc Tukey tests ($\alpha = .05$) were conducted when a significant difference emerged. During the preemployment period, the high-adversity group differed significantly from the low- and medium-adversity groups on the psychophysiologic symptoms scale. During the postemployment period, each group differed significantly from the other two groups on the CES-D (the Center for Epidemiologic Studies–Depression Scale [Radloff, 1977]); on both job satisfaction measures and the psychophysiologic symptoms scale, the high-adversity group differed significantly from the other two groups; the high- and low-adversity groups differed significantly on the motivation (motiv.) scale. Data were not available on a small number of participants at both periods of data collection, accounting for slight differences in the degrees of freedom for the statistical tests described in this table. PP represents the psychophysiologic symptoms scale.

ascertaining the frequency with which stressors occur are less likely to be confounded with prior symptoms (Kasl, 1987; Schonfeld, 1990; Schonfeld et al., 1995).

Episodic stressor scale. This scale consisted of 20 items that assessed the frequency with which teachers encounter episodically occurring stressors (e.g., threat of personal injury, confrontation initiated by an insolent student, episode of vandalism). The response alternatives were (0) *not at all,* (1) *once per month,* (2) *one per week,* (3) *2–4 times per week,* and (4) *daily.* The scale was scored by computing the teacher's mean on the items. The coefficient alpha for the scale was .83. The sample mean and standard deviation were 1.13 and 0.58, respectively.

Ongoing stressor scale. This scale consisted of 30 items assessing the frequency of ongoing types of job stressors (e.g., overcrowded classroom, unmotivated students attending class, administrators not enforcing rules against disruptive pupils). The response alternatives were (0) *not at all,* (1) *to a minimal extent,* (2) *to a small extent,* (3) *to a moderate extent,* and (4) *to a great extent.* The scale was scored by computing the teacher's mean on the items. To reduce tendencies toward response set, I included in both the episodic and ongoing stressor scales a small number of positively worded items (e.g., "a parent praised you") that were reverse scored. The alpha coefficient for the ongoing stressor scale was .86. The sample mean and standard deviation were 1.25 and 0.55, respectively.

Crime scale. Another set of items ascertained the number of times, although these occurrences were relatively rare, the teacher was a victim of various crimes in or near school. The crimes included assault, theft of property, property damage resulting from student misbehavior, harassment going to or from school, having been hurt breaking up a fight, and robbery. One last item asked about other teachers having been assaulted in or near school. The crime scale was constructed by tallying the number of crimes. Because a small number of women ($n = 5$) reported 7 to 13 crimes (none with 6), usually as result of reporting several incidents of property damage or assaults against other teachers, values of 7 or more were recoded to 5. Unlike the two other measures of the work environment, the items for this scale are considered causal indicators (Bollen & Lennox, 1991) of the construct crime rather than effects of the construct as in classical test theory. A coefficient alpha was, therefore, not warranted.

The sample mean and standard deviation were 0.69 and 1.31, respectively. High scores on the episodic stressor, ongoing stressor, and crime scales reflected greater adversity in the work environment.

Previous research on the scales. Pilot research using versions of the work-environment scales in two different veteran-teacher samples suggested that the scales had satisfactory measurement properties. In the first study (Schonfeld, 1990), the scales tended to predict psychological symptoms, job satisfaction, and motivation (Schonfeld, 1990). Additional analyses showed that the scales were considerably more highly related to each other than they were to a measure of nonwork stress. A second, short-term longitudinal study (Schonfeld, 1994) conducted on a different veteran-teacher sample showed that (a) the scales had satisfactory retest reliabilities, (b) the scales were correlated with satisfaction and motivation (symptoms were not measured), and (c) social desirability did not bias the correlations.

Data Analytic Considerations

For an initial examination of the trajectory of change over time in the symptom, satisfaction, and motivation measures in relation to the quality of working conditions, participants were stratified on the episodic stressor scale. The episodic stressor scale was chosen because (a) it had satisfactory reliability, (b) past research with the scale suggested that, compared with the ongoing stressor scale, it was less confounded with prior symptoms, and (c) 70% of the teachers reported no crime, reducing the utility of the crime scale. Using as cutoffs scale scores marking the 33rd and 67th percentile ranks, the women were designated as exposed to low-, medium-, and high-adversity school environments. If NA were related to reported working conditions, either through distorted perceptions or "event proneness" (Dohrenwend & Dohrenwend, 1981), one would expect that women who reported high levels of stressors would have been most symptomatic in the preemployment period.

One-way analyses of variance (ANOVAs) and profile analyses (Morrison, 1976) assessed the relation of working conditions to the symptom, satisfaction, and motivation measures. Although there is some loss of power resulting from stratifying participants on a continuous variate, stratification is helpful in exposing job-related trajectories of change in the outcomes. The observer can thus examine job-related differences on the postemployment outcomes and, more important, compare the postemployment differences with differences on the preemployment counterparts of those outcomes. A power analysis (Gorman, 1993) indicated that the sacrifice in power was small. The power of one-way ANOVAs to detect small- to medium-sized effects (Cohen's [1992] $f = .175$) in relation to the trichotomized variable was approximately .80, given the sample size and an alpha of .05. The power was very similar to that for detecting a small-to-medium correlation of .15 by Cohen's operational definition.

For the examination of the relation between job conditions and postemployment depressive symptoms, preemployment depressive and PP symptoms were statistically controlled through partial correlation. This procedure follows the methods used by Brief et al. (1988), Burke et al., (1993), Chen and Spector (1991), and Chen et al. (1993). The partial correlational analyses remove from both the postemployment symptom measures and the measures of job conditions variance shared with preemployment symptoms. The shared variance represents initial distress that carries over across time, possibly to bias estimates of the correlation between working conditions and postemployment symptoms. Similarly, partial correlational analyses were used to examine the relation of working conditions to postemployment satisfaction and motivation controlling for preemployment expected job satisfaction and motivation, respectively.

The above-mentioned investigators did not present findings bearing on the effects of NA on regression coefficients. The analyses were extended to examine the ordinary least squares regression coefficients for the work-environment scales when NA was controlled.

Results

ANOVAs and Related Tests

The sample was divided into three, about equal-sized, groups consisting of the lowest, middle, and highest scorers on the fall episodic stressor scale. The women's mean scores on the pre- and postemployment measures are presented in Table 1. On three of the four preemployment scales, there were no significant mean differences. The groups differed significantly on preemployment PP symptoms, suggesting that the episodic stressor scale was somewhat confounded with NA. During the postemployment period, the groups differed significantly on all measures. These results and the results of post hoc tests (also described in Table 1) indicate that teachers in schools with the reported poorest working conditions had the most symptoms and the lowest levels of satisfaction and motivation.

Profile analyses assessed Occasion × Working Conditions interactions. Interactions were detected for the CES-D, $F(2, 245) = 16.03$, $p < .001$, job satisfaction (expected satisfaction vs. the one-item job satisfaction measure), $F(2, 245) = 4.53$, $p < .01$, and motivation, $F(2, 245) = 2.97$, $p \approx .05$. The interactions were consistent with the view that the preemployment means were indistinguishable, but the postemployment means differed—with the women working in the most adverse school environments having the worst scores, and the women in the best environments the most favorable scores. The interaction for the PP symptom scale was not significant, $F(2, 243) = 0.93$.

To explore further the patterns of findings, I conducted correlated t tests within the low-, medium-, and high-adversity groups. Within the low-adversity group, mean depressive symptoms declined significantly from the pre- to the postemployment period, $t(81) = -2.76$, $p < .01$ (two-tailed). In the medium-adversity group, mean symptoms did not change significantly, $t(80) = 1.27$. In the high-adversity group, mean symptoms increased markedly, $t(84) = 4.94$, $p < .001$. Thus the pre–post change in depressive symptoms reflected a fanlike spread in distribution (see Figure 1).

In each of the three adversity groups, the mean score on the one-item postemployment measure of satisfaction declined when compared with the expected job satisfaction measure: low, $t(81) = -2.19$, $p < .05$; medium, $t(80) = -3.06$, $p < .01$; high, $t(85) = -5.45$, $p < .001$; the findings were similar when the three-item job satisfaction scale was used. The effect sizes indicated that, while satisfaction declined in all groups, the decline was steepest in the high-adversity group and intermediate in the medium-adversity group. A similar pattern of findings was

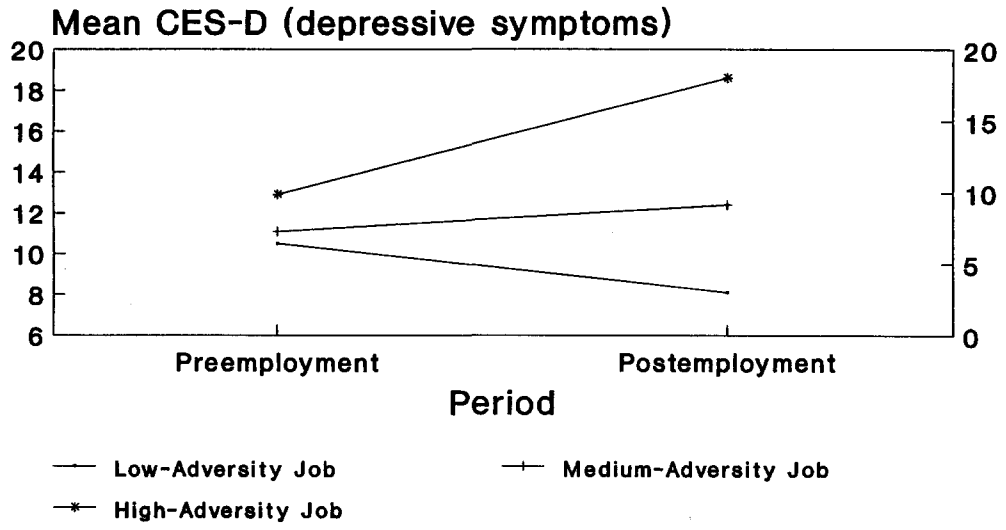

Figure 1. Mean pre- and postemployment CES-D (the Center for Epidemiologic Studies–Depression Scale [Radloff, 1977]) scores of the women teachers having low-, medium-, and high-adversity jobs. Significant group differences were found for the postemployment period ($p < .001$), but not for the preemployment period.

obtained for motivation: low, $t(81) = -2.26, p < .05$; medium, $t(80) = -3.58$, $p < .001$; high, $t(85) = -4.45, p < .001$.

The pattern was different for PP symptoms. No significant mean change occurred within the low-adversity group, $t(81) = 1.10$, but significant pre–post increases occurred in the medium-, $t(78) = 3.27, p < .01$, and high-adversity groups, $t(85) = 2.01, p < .05$.

Zero-Order Correlations

Table 2 shows the zero-order correlations among all measures. The table indicates that the CES-D and the PP symptom scale were, cross-sectionally, the most strongly related psychological outcomes (preemployment $r = .57$; postemployment $r = .67$). During the postemployment period, job satisfaction was about as closely related to the CES-D ($r = -.45$) as to motivation ($r = .50$).

The CES-D, motivation, and PP symptoms demonstrated moderate stability ($.48 \leq r \leq .58$). The preemployment CES-D showed continuity with postemployment PP symptoms ($r = .43$) and the preemployment PP symptom scale, with the postemployment CES-D ($r = .38$). The work-environment measures were moderately to strongly related to each other ($.39 \leq r \leq .66$).

Compared with the ongoing stressor scale, the episodic stressor and crime scales were less confounded with the four preemployment measures; each work-environment scale, however, was modestly, but significantly, related to preemployment PP symptoms ($.14 \leq r \leq .25$). Compared with the crime scale ($.08 \leq |r| \leq .28$), the episodic and ongoing stressor scales ($.23 \leq |r| \leq .53$) were more strongly related to postemployment outcomes.

Because a segment of the women was Nonwhite (Black, Hispanic, and Asian), the correlations were recomputed within the White and Nonwhite subsamples. Nine of the 55 correlations differed significantly ($p < .05$, two-tailed), somewhat more than the 3 expected by chance. Significant differences between correlation coefficients, and, by implication, r^2s are reported below in keeping with the explained variance theme of Brief et al. (1988), Burke et al. (1993), and Chen and Spector (1991; Chen et al., 1993). The pattern of differences, however, would not be much altered had the findings been presented on regression slope differences, given equations in which race is dummy coded and the interaction of race and the predictor is represented by a multiplicative term (Cohen & Cohen, 1983).

Two correlational patterns emerged. First, for some of the outcomes, there was higher stability among Nonwhites (NW) than among Whites (W; $r_{NW} = .71$, $r_W = .42$ for the CES-D; $r_{NW} = .63$, $r_W = .40$ for motivation; and $r_{NW} = .67$, $r_W = .30$ for preemployment PP symptoms and postemployment CES-D).

Second, the work-environment scales were less closely related to the postemployment morale measures of job satisfaction and motivation in the Nonwhite subsample than in the White subsample ($r_{NW} = -.27$, $r_W = -.52$ for episodic stressors and job satisfaction; $r_{NW} = .08$, $r_W = -.36$ for episodic stressors and motivation; and $r_{NW} = .09$, $r_W = -.39$ for ongoing stressors and motivation). Significant

Table 2
Correlations Among the Pre- and Postemployment Measures of Psychological Outcomes and the Measures of the Work Environment

Variable	1	2	3	4	5	6	7	8	9	10
Pre										
1. CES-D	—									
2. Expected job sat.	−.10	—								
3. Motivation	−.22***	.33***	—							
4. PP symptoms	.57***	−.12	−.24***	—						
Post										
5. CES-D	.48***	−.12	−.26***	.38***	—					
6. Job sat.	.01	.23***	.12	−.06	−.45***	—				
7. Motivation	−.04	.27***	.48***	−.08	−.33***	.50***	—			
8. PP symptoms	.43***	−.08	−.19**	.58***	.67***	−.21***	−.16*	—		
9. Episodic stressors	.09	−.10	−.10	.22***	.45***	−.48***	−.23***	.28***	—	
10. Ongoing stressors	.19**	−.14*	−.13*	.25***	.48***	−.53***	−.26***	.29***	.66***	—
11. Crimes	.02	−.00	.00	.14*	.18*	−.28***	−.08	.08	.48***	.39***

Note. $244 \leq n \leq 250$. PP = the psychophysiologic symptoms scale; CES-D = the Center for Epidemiologic Studies–Depression Scale (Radloff, 1977); Sat. = satisfaction.
*$p < .05$. ***$p < .001$, two-tailed.

differences did not emerge for the symptom measures. Three other differences were found: Expected job satisfaction was more closely related to concurrent motivation in the Nonwhite subsample ($r_{NW} = .57$, $r_W = .25$), postemployment motivation was more independent of concurrent depressive symptoms in the Nonwhite subsample ($r_{NW} = -.13$, $r_W = -.42$), and the ongoing stressor scale was differently related to expected satisfaction in the two groups ($r_{NW} = .12$, $r_W = -.20$).

Partial Correlations and Regressions

In the next set of analyses, conducted separately within the White (Table 3) and the Nonwhite (Table 4) subsamples, each zero-order correlation relating a work-environment measure to a postemployment outcome was recomputed controlling for the latter's preemployment analogue. Second-order partials were computed, controlling for both the preemployment analogue and preemployment PP symptoms for postemployment CES-D, job satisfaction, and motivation. The relation of the work-environment measures to postemployment PP symptoms was examined, controlling for both preemployment PP symptoms and CES-D. Third-order partials were computed for job satisfaction and motivation, controlling for the preemployment analogues and both preemployment symptoms scales. In the White subsample, the relation of the work-environment scales to postemployment CES-D, job satisfaction, and motivation was essentially unchanged when the preemployment measures were controlled. Only the relation of working conditions to postemployment PP symptoms was somewhat reduced by the partialling.

Table 4 presents the partial correlational analyses for the Nonwhite subsample. Because the subsample's size was small ($n = 55$) and heterogeneous, caution is advised in interpreting the results. Again, the controls for the preemployment measures did not greatly alter the zero-order relations between the work-environment measures and postemployment CES-D, job satisfaction, and motivation; the correlations with postemployment PP symptoms, however, were more sharply reduced.

Although the White–Nonwhite correlations involving the postemployment CES-D were similar, a comparison of Tables 3 and 4 indicates that in the Nonwhite subsample the work-environment scales tended to be less strongly, but still significantly, related to job satisfaction. In sharp contrast to the significant correlations of the work-environment scale to postemployment motivation in the White subsample, the correlations were nonsignificant in the

Table 3
Zero-Order and Partial Correlations Between the Work-Environment Measures and Postemployment Outcomes: White Participants

Work-environment measure	Postemployment outcomes											
	CES-D			Job satisfaction			Motivation			PP symptoms		
	(0)	(1)	(2)	(0)	(1)	(2)	(3)	(0)	(1)	(2)	(3)	(0)	(1)	(2)
Episodic stressors	.44***	.46***	.46***	−.52***	−.51***	−.52***	−.52***	−.36***	−.35***	−.36***	−.36***	.25***	.19**	.20**
Ongoing stressors	.50***	.47***	.46***	−.57***	−.55***	−.56***	−.56***	−.39***	−.36***	−.37***	−.38***	.29***	.21**	.20**
Crimes	.13	.16*	.15*	−.29***	−.29***	−.29***	−.29***	−.13	−.16*	−.16*	−.15*	.03	−.03	−.02

Note. $189 \leq n \leq 193$. In the first-order (1) partials, the preemployment version of each postemployment outcome measure was controlled. In the second-order (2) partials involving the postemployment CES-D (the Center for Epidemiologic Studies–Depression Scale [Radloff, 1977]), job satisfaction, and motivation, the postemployment outcome measure's preemployment analogue and preemployment PP symptoms were controlled. In the second-order partial involving postemployment PP symptoms, preemployment PP symptoms and the preemployment CES-D were controlled. In the third-order (3) partials involving postemployment job satisfaction and motivation, each measure's preemployment analogue was controlled in combination with the two preemployment symptom scales. PP represents the psychophysiologic symptoms scale.
*$p < .05$. **$p < .01$. ***$p < .001$, two-tailed.

Table 4
Zero-Order and Partial Correlations Between the Work-Environment Measures and Postemployment Outcomes: Nonwhite Participants

Work-environment measure	Postemployment outcomes													
	CES-D			Job satisfaction				Motivation				PP symptoms		
	(0)	(1)	(2)	(0)	(1)	(2)	(3)	(0)	(1)	(2)	(3)	(0)	(1)	(2)
Episodic stressors	.47****	.48****	.37**	−.27**	−.31**	−.26*	−.25*	.08	.23*	.18	.18	.38***	.11	.11
Ongoing stressors	.39***	.43****	.31**	−.36***	−.41***	−.38***	−.36***	.09	.16	.10	.10	.27**	−.01	−.01
Crimes	.38***	.34***	.27**	−.21	−.24*	−.20	−.20	.11	.20	.16	.16	.30**	.12	.12

Note. $54 \leq n \leq 55$. In the first-order (1) partials, the preemployment version of each postemployment outcome measure was controlled. In the second-order (2) partials involving the postemployment CES-D (the Center for Epidemiologic Studies–Depression Scale [Radloff, 1977]), job satisfaction, and motivation, the postemployment outcome measure's preemployment analogue and preemployment PP symptoms were controlled. In the second-order partial involving postemployment PP symptoms, preemployment PP symptoms and the preemployment CES-D were controlled. In the third-order (3) partials involving postemployment job satisfaction and motivation, each measure's preemployment analogue was controlled in combination with the two preemployment symptom scales. PP represents the psychophysiologic symptoms scale.

*$p < .10$. **$p < .05$. ***$p < .01$. ****$p < .001$, two-tailed. Because the size of the Nonwhite (Black, Hispanic, and Asian) subsample is considerably smaller than that of the White subsample, p values less than .10 are reported.

Nonwhite subsample (even the sign was reversed). Tests for group differences in the size of the relation of the work-environment scales to the outcomes were conducted, controlling for the appropriate preemployment variables (column 2 for the CES-D and PP symptoms and column 3 for job satisfaction and motivation). The relation of the episodic stressor scale to job satisfaction was significantly weaker ($p < .05$) in the Nonwhite subsample. The relation of the episodic ($p < .001$), ongoing stressor ($p < .01$), and crime scales ($p < .05$) to motivation was significantly different in the two subsamples. No other significant between-group differences were found. The pattern of findings was similar when testing for differences in regression slopes.

Burke et al. (1993) and Chen et al. (1993) called attention to the difference in the amount of outcome variance a stress scale explains when NA is and is not controlled. Inspection of Tables 3 and 4 indicates that the zero-order correlations (and, by implication, the proportions of explained variance) involving the CES-D, job satisfaction, and motivation changed very little when the control variables were partialled. To explore further this issue, I constructed 95% confidence intervals around each zero-order correlation in Tables 3 and 4. Only two final partial coefficients from those tables were outside the interval constructed for its corresponding Pearson coefficient: In the Nonwhite sample, the relation of the episodic and ongoing stressor scales to postemployment PP symptoms was so affected when preemployment PP symptoms were controlled that each resulting partial was outside the interval constructed for its corresponding Pearson.

Correlation coefficients and regression slopes carry different information (Arnold, 1984). Table 5 presents the unstandardized regression coefficients ("*B*" weights) for a set of equations containing each work-environment measure alone (simple regression) and together with the same control variables found in the partials (multiple regression), regardless of the significance levels of the control variables. Inspection of the simple and multiple regression results suggests that the *B* weights for the work-environment scales obtained from the simple regression equations used to predict the CES-D, job satisfaction, and motivation tended to change little when the control variables were entered into the equations. In an exploratory procedure similar to the procedure described above for the Pearson and the partial correlations, 95% confidence intervals were constructed around each work-environment scale's *B* weight in every simple regression equation. Only two *B* weights for the work-environment scales, when situated in the multiple regression equations, were outside the intervals constructed for the *B* weights found in the corresponding simple regression equations. The weights for the episodic and ongoing stressor scales were most affected by the control variables when predicting PP symptoms in the Nonwhite subsample.

Discussion

This study was conducted to shed light on the controversy surrounding the nature of the influence of NA on the relation of self-report work-environment measures to measures of psychological symptoms,

job satisfaction, and motivation. ANOVAs and profile analyses indicated that three of the four preemployment measures (CES-D, expected job satisfaction, and motivation) were relatively independent of reported job conditions. Moreover, pre–post changes on the outcomes were dependent on working conditions. Although assessed before the women's entry into the work force, preemployment PP symptoms, a factor linked to NA, was modestly, but significantly, related to all three measures of working conditions.

In the White and Nonwhite subsamples, the correlations of the work-environment scales with postemployment CES-D, job satisfaction, and motivation, and, by implication, the resulting r^2s, were largely unaffected by controls for preemployment symptom–analogue scales. Similarly, the regression coefficients used to predict those outcomes were largely unaltered when controlling for NA. The work-environment scales tended to have a smaller, but significant, relation, as reflected by the partial correlations and regression weights, with job satisfaction in Nonwhites. Among Whites, the work-environment measures were related to poorer motivation to continue in the profession; among Nonwhites, however, the work-environment scales did not significantly predict motivation. In both subgroups, the relation of the work-environment scales to postemployment PP symptoms was reduced when preemployment PP symptoms were controlled. In the Nonwhite, but not the White, subgroup the correlation and regression coefficients for the episodic and ongoing stressor scales were reduced to nonsignificance when the preemployment control variables were introduced.

The study was subject to a number of limitations. First, the nature of the sample was limited to adult women college graduates starting their careers. A broader database is required before generalizations to men and veteran workers are warranted. Another limitation to the study is that too few Black, Hispanic, and Asian women were available to examine those groups separately.

Although none of the work-environment scales was uncorrelated with every preemployment measure, the episodic stressor and crime scales were relatively freer of confounding than the ongoing stressor scale. The response alternatives for the ongoing stressor items (e.g., "To a small extent" and "To a moderate extent") were less closely tied to estimable frequencies than the episodic items (e.g., "Once per week" and "2–4 times per week"), perhaps permitting slightly more response distortion on the ongoing stressor scale.

Compared with the episodic and ongoing stressor scales, the crime scale was more weakly related to postemployment outcomes. Two features limited the crime scale's ability to predict. First, 70% of the women had not experienced crime in connection to their jobs. Second, the crime scale lumped together crimes of differing magnitude (e.g., assault and property damage).

A more general limitation of the study is the absence of more direct measures of NA; the preemployment symptom measures, rather than reflecting NA, may have reflected responses to recent environmental stressors. To evaluate this possibility, I repeated the partial correlational analyses within the subgroup of teachers who had experienced no fateful loss events (Dohrenwend et al., 1987) during the preemployment period (e.g., death of a loved one). The partial coefficients were essentially unchanged (e.g., the partial correlation between episodic stressors and the postemployment CES-D, controlling for both preemployment symptom measures, was .48, $p < .001$), suggesting that preemployment symptom levels represented more than transient responses to stress in the women's personal lives.

Another limitation of the study is that one might expect the cross-time correlation of the CES-D ($r = .48$) and the PP symptoms scale ($r = .58$) to have been higher if the measures were to reflect considerable trait variance. In a longitudinal study (Chen et al., 1993) of occupational stress in a comparable age group, the 1-year NA correlation was somewhat higher ($r = .73$) than the shorter term correlations obtained here. This study does not make the claim that either the CES-D or the PP symptoms scale is solely a trait measure. Rather, the claim made is that measures like the CES-D can be viewed as consisting of both NA and state components. That is why they show both a degree of stability and also respond to acute workplace stressors. As a precaution against underestimating the influence of NA, the partial correlational and regression analyses include controls for both preemployment symptoms measures.

Pre- to postemployment changes in depressive symptoms, job satisfaction, and motivation were related to adversity in the workplace, underlining the potency of the difficulties many teachers encounter. These difficulties have been documented in qualitative studies (Blase, 1986; Schonfeld & Santiago, 1994). The size of each correlation and regression coefficient linking the episodic and ongoing stressor

Table 5
Unstandardized Regression Weights for Equations Involving Each Postemployment Outcome

Predictor	White participants				Nonwhite participants			
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
				CES-D				
Episodic stress	8.37****	1.22	7.94****	1.12	9.34****	2.38	5.05***	1.78
Pre CES-D			.43****	.08			.48****	.09
Pre PP symptoms			.02	.12			.37**	.15
Adjus. R^2	.19****		.34****		.21****		.64****	
				Job satisfaction				
Episodic stress	−0.97****	0.11	−.94****	.11	−0.38**	0.18	−.37*	.20
Pre satisfaction			.16***	.06			.19*	.10
Pre PP symptoms			.01	.01			−.01	.02
Pre CES-D			.00	.01			.01	.01
Adjus. R^2	.27****		.29****		.06**		.10**	
				Motivation				
Episodic stress	−0.58****	0.11	−.54****	.10	0.20	0.33	.37	.28
Pre motivation			.51****	.08			.89****	.15
Pre PP symptoms			.00	.01			.01	.02
Pre CES-D			.01	.01			−.00	.02
Adjus. R^2	.12****		.26****		.00		.39****	
				PP symptoms				
Episodic stress	3.04****	0.86	2.09***	.73	4.86***	1.66	1.15	1.43
Pre PP symptoms			.45****	.08			.59****	.12
Pre CES-D			.14***	.05			.03	.08
Adjus. R^2	.06****		.34****		.12***		.48****	
				CES-D				
Ongoing stress	9.28****	1.16	7.98****	1.12	7.47***	2.40	3.97**	1.73
Pre CES-D			.34****	.08			.49****	.10
Pre PP symptoms			.05	.12			.41**	.15
Adjus. R^2	.25****		.34****		.14***		.62****	
				Job satisfaction				
Ongoing stress	−1.02****	0.11	−1.04****	.11	−0.49***	0.17	−.52***	.19
Pre satisfaction			.13**	.06			.21**	.09
Pre PP symptoms			.01	.01			−.01	.02
Pre CES-D			.01*	.01			.01	.01
Adjus. R^2	.32****		.34****		.12***		.17**	
				Motivation				
Ongoing stress	−0.63****	0.11	−.57****	.10	0.21	0.31	.19	.27
Pre motivation			.48****	.09			.88****	.15
Pre PP symptoms			−.00	.01			.02	.02
Pre CES-D			.01	.01			−.00	.02
Adjus. R^2	.15****		.27****		.00		.38****	
				PP symptoms				
Ongoing stress	3.48****	0.84	2.00***	.73	3.34**	1.67	−.06	1.36
Pre PP symptoms			.46****	.08			.63****	.12
Pre CES-D			.12**	.05			.03	.08
Adjus. R^2	.08****		.34****		.05**		.47****	
				CES-D				
Crimes	0.99*	0.54	1.00**	.49	3.57***	1.20	1.67**	.84
Pre CES-D			.42****	.09			.46****	.10
Pre PP symptoms			.12	.13			.47***	.15
Adjus. R^2	.01*		.18****		.13***		.62****	

Table 5 (*continued*)

Predictor	White participants				Nonwhite participants			
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Job satisfaction								
Crimes	−.21****	.05	−.21****	.05	−.14	.09	−.13	.09
Pre satisfaction			.21***	.06			.18*	.10
Pre PP symptoms			.00	.01			−.02	.02
Pre CES-D			.00	.01			.01	.01
Adjus. R^2	.08****		.11****		.02		.08*	
Motivation								
Crimes	−.09*	.05	−.09**	.04	.10	.16	.15	.13
Pre motivation			.55****	.09			.89****	.15
Pre PP symptoms			−.00	.01			.02	.02
Pre CES-D			.01	.01			−.00	.02
Adjus. R^2	.01*		.17****		.00		.39****	
PP symptoms								
Crimes	.12	.35	−.07	.30	1.88**	.82	.56	.65
Pre PP symptoms			.49****	.08			.60****	.12
Pre CES-D			.13**	.05			.03	.08
Adjus. R^2	.00		.31****		.07**		.48****	

Note. $189 \leq n \leq 193$ in the White sample and $54 \leq n \leq 55$ in the Nonwhite sample. CES-D = the Center for Epidemiologic Studies–Depression Scale (Radloff, 1977); PP = psychophysiologic; Adjus. = adjusted.
*$p < .10$. **$p < .05$. ***$p < .01$. ****$p < .001$, two-tailed.

scales to the postemployment CES-D, job satisfaction, and motivation was largely unchanged when preemployment symptoms were controlled, suggesting that the neutral self-report scales could be useful in research linking the work environment to psychological outcomes independently of NA. The findings are consistent with Chen and Spector (1991), supporting the view that NA does not overly distort the relation of some work-environment measures to depressive symptoms, job satisfaction, and motivation.

The findings are also consistent with Burke et al. (1993) in that the relation of two work-environment scales to postemployment PP symptoms was weakened when preemployment PP symptoms were controlled. Recently Chen et al. (1993) found that the relation of work stressors to somatic complaints in comparison to other outcomes is more likely to be reduced when NA is controlled. These findings are in keeping with Watson and Pennebaker's (1989) view that somatic complaints or PP symptoms reflect NA.

Among both White and Nonwhite teachers, working conditions affected depressive symptoms about equally. Among Nonwhites, however, working conditions exerted less of an effect on job satisfaction and no significant effect on motivation to teach. In fact, depressive symptoms were not concurrently related to postemployment motivation in Nonwhites, although the two variables were related in Whites. The pattern of findings suggests that although workplace adversity can provoke similar levels of psychological distress in White and Nonwhite teachers, such conditions are less likely to affect the motivation of Nonwhite teachers to remain in the profession. Two hypotheses, which are not mutually exclusive, are compatible with these results. First, because a large racially and ethnically diverse population attends local schools, Nonwhite teachers have a greater personal commitment to remain in the profession, despite difficulties arising from urban poverty spilling over into schools. Second, given the relative disadvantage of the economic backgrounds of Nonwhite, in comparison to White, teachers, Nonwhite teachers are more motivated to commit themselves to their jobs, even in the face of workplace adversity.

Although no data were collected that bear directly on the first hypothesis, data bearing on the second were available. Consistent with the second hypothesis, the parents of the Nonwhite teachers were, on average, significantly more disadvantaged on Hollings-

head's (1974) five-factor scale: (M_{NW} = 3.2, M_W = 2.5), $t(248) = 3.97$, $p < .001$. In view of this difference, the zero-order and partial correlations bearing on postemployment motivation were recalculated within a White subgroup that excluded women from families in the two most advantaged social classes. The exclusions had the effect of making the White group "more disadvantaged" than the Nonwhite group. These exclusions, however, had little effect on the zero-order and partial correlations relating the work-environment scales to motivation, casting doubt on a purely economic explanation of the motivation-related findings.

Narrow- and Broad-Band Scales

One difference between this study and the studies by Chen and Spector (1991) and Brief et al. (1988) is that this study used self-report items that were aimed specifically at assessing working conditions encountered by teachers. Chen and Spector and Brief et al. used broader band measures that applied to diverse occupations. The stressor items in this study, in line with Kasl's (1987) critique of many existing self-report stress measures, were worded neutrally to minimize reference to the distress the stressors are thought to engender.

Neutrally worded self-reports of working conditions more readily lend themselves to within-occupation research. An item that assesses the frequency with which an incumbent encountered students engaged in a fight is clearly designed for teachers and cannot be used with most other occupations. Between-occupations research requires broader band items (e.g., Hackman & Oldham's, 1975, Job Diagnostic Survey) that ignore the unique characteristics of particular workplaces but aim to capture characteristics common to a great variety of workplaces.

On the negative side of broader band items, greater inference making is required on the part of the incumbent in judging, say, role ambiguity, or some other work-role dimension. Accompanying the greater inference making is the problem of bias resulting from the influence of NA (e.g., high-NA individuals overestimating the amount of role conflict on the job; cf. Schroeder & Costa, 1984). Levin and Stokes (1989) adduced evidence for the view that workers high in NA are more likely to attend to and remember unfavorable aspects of their jobs as well as bias their perceptions of their jobs. In this study, items were written to keep to a minimum the depth of the inferences the teachers were required to draw when responding to the items (e.g., "You were assaulted by a student or an intruder? No, Yes. If Yes, how many times?"). To control for the potential of NA biasing cognitions about work, future investigators might similarly develop self-report items that minimize the amount of inference making required of incumbents who are asked to characterize their work environments.

One suggestion for future efforts aimed at addressing the problem of NA or another personality factor biasing research instruments is to conduct studies for the purpose of identifying items that correlate with the confounding factors. Ideally such research should be longitudinal and applied to broad- or narrow-band instruments (or intermediate-band instruments that apply to a circumscribed group of occupations like the helping professions). Item-level research on the quality of the instruments need not be conducted in isolation but can be conducted in concert with research devoted to more substantive issues (Schonfeld et al., 1995). For example, Raphael and Dohrenwend (1987), in the context of a case-control study of psychiatric disorder, investigated confounding in a widely used measure of self-disclosure and applied known-groups methods to identify items that were independent of psychopathology and items that were psychopathology dependent. If some consensus emerges from this kind of research, the most confounded work-environment items may be reasonably excluded from scale construction regardless of the items' contribution to the scale's coefficient alpha.

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